Title (en)

LASER-ACCELERATED PROTON THERAPY UNITS AND SUPERCONDUCTING ELETROMAGNETIG SYSTEMS FOR SAME

Title (de)

LASERBESCHLEUNIGTE PROTONENTHERAPIEEINHEITEN UND SUPRALEITENDE ELEKTROMAGNETISCHE SYSTEME DAFÜR

Title (fr)

UNITES DE THERAPIE PROTONIQUE ACCELEREES AU LASER ET SYSTEMES A ELECTROAIMANTS SUPRACONDUCTEURS ASSOCIES

Publication

EP 1846508 A2 20071024 (EN)

Application

EP 05858679 A 20051221

Priority

- US 2005046834 W 20051221
- US 63887004 P 20041222

Abstract (en)

[origin: WO2007061426A2] Compact particle selection and collimation devices are disclosed for delivering beams of ions with desired energy spectra. These devices are useful with laser-accelerated ion therapy systems, in which the initial ions have broad energy and angular distributions. Superconducting electromagnet systems produce a desired magnetic field configuration to spread the ions with different energies and emitting angles for particle selection. The simulation of ion transport in the presence of the magnetic field shows that the selected ions are successfully refocused on the beam axis after passing through the magnetic field. Dose distributions are also provided using Monte Carlo simulations of the laser-accelerated ion beams for radiation therapy applications.

IPC 8 full level

G21G 5/00 (2006.01); **H01J 1/50** (2006.01); **H01J 3/00** (2006.01); **H01J 37/08** (2006.01)

CPC (source: EP US)

A61N 5/10 (2013.01 - EP US); **G21K 1/093** (2013.01 - EP US); **G21K 5/04** (2013.01 - EP US); **H05H 15/00** (2013.01 - EP US); A61N 2005/1087 (2013.01 - EP US); A61N 2005/1088 (2013.01 - EP US)

Citation (search report)

See references of WO 2007061426A2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA HR MK YU

DOCDB simple family (publication)

WO 2007061426 A2 20070531; **WO 2007061426 A3 20090604**; AU 2005338471 A1 20070531; CA 2591144 A1 20070531; CN 101443419 A 20090527; EP 1846508 A2 20071024; IL 184134 A0 20071031; JP 2008525968 A 20080717; US 2009050819 A1 20090226; US 7755068 B2 20100713

DOCDB simple family (application)

US 2005046834 W 20051221; AU 2005338471 A 20051221; CA 2591144 A 20051221; CN 200580048082 A 20051221; EP 05858679 A 20051221; IL 18413407 A 20070621; JP 2007548540 A 20051221; US 72087305 A 20051221